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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,638	02/27/2002	Akihiko Kanouda	381NP/50933	1808

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EXAMINER

DEBERADINIS, ROBERT L

ART UNIT	PAPER NUMBER
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2836

DATE MAILED: 07/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
10/083,638

Applicant(s)
AKIHIKO KANOUDA et al.

Examiner
Robert L. DeBeradinis

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2836



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Feb 27, 2002
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14 and 15 is/are allowed.
- 6) ☒ Claim(s) 1-6 and 10 is/are rejected.
- 7) ☒ Claim(s) 7-9 and 11-13 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on Feb 27, 2002 is/are a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 6 6) ☐ Other:

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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 3, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over FABERMAN 5,978,236 in view of LANDIS 6,509,712.

Regarding claims 1, 2, 3.

FABERMAN discloses a backup power supply built in a power supply circuit for converting an alternating current received from a commercial AC power supply to a direct current and a load operated by said current generated by said power supply circuit, comprising:

at least one AC-DC converter (D1A) connected to said commercial alternating current (E1A, ac power in), at least one two-way DC-DC converter (33), with one side thereof connected to said DC output side and a secondary battery (31) connected to another side of said two-way DC-DC converter, wherein the direction of electrical energy flow is determined by the deviation of the ratio of the potential of the source of the DC power and the potential of the source of the stored energy from a predetermined ratio (column 5, lines 23-25).

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FABERMAN does not disclose a predetermined peak cut current, wherein when a load current is a predetermined peak cut current or larger, said backup power supply supplies a differential current between said load current and said predetermined peak cut current to said load from said secondary battery via said two-way DC-DC converter.

LANDIS discloses a voltage bus regulation circuit to regulate a bus voltage supplying a pulsating load wherein when the pulsating load is at its peak value of 150 amperes, the BVL circuit provides it maximum 100 amperes, the BDC circuit provides the 50 ampere difference, when the pulsating load is at a minimum value of 50 amperes, the BDC cuts off, and the BVL provides the 50 amperes load, and up to 50 amperes battery charge current.

It would have been obvious to one having ordinary skill in the art at the time this invention was made to have modified the UPS of Faberman to provide a backup power supply with a peak cut current, wherein when a load current is a predetermined peak cut current or larger, said backup power supply supplies a differential current between said load current and said predetermined peak cut current to said load from said secondary battery via said two-way DC-DC converter. The motivation would be to regulate the output voltage of the backup power supply when supplying a pulsating load, thereby avoiding poor power quality (column 2, lines 10-25).

Regarding claim 10.

FABERMAN in view of LANDIS disclose a backup power supply according to claim 1.

FABERMAN discloses wherein a voltage at a connection point of said AC-DC converter and said two-way DC-DC converter is higher than a voltage of said secondary battery, and when

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said two-way DC-DC converter is discharged from a side of said secondary battery, said converter is operated as a booster circuit, and when said secondary battery is charged, said converter is operated as a voltage reduction chopper circuit (column 6, lines 30-58).

3. Claims 4, 5, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over FABERMAN 5,978,236 in view of LANDIS 6,509,712 in further view of BARANOWSKI 5,703,470.

Regarding claim 4.

FABERMAN in view of LANDIS disclose a backup power supply according to claim 3, wherein said backup power supply takes in only a current equivalent to a differential current between said predetermined peak cut current and said load current from said two-way DC-DC converter and charges said secondary battery.

FABERMAN does not disclose wherein said charging current for charging said secondary battery has an upper limit of a predetermined current.

BARANOWSKI discloses a charger controller that instantaneously computes a desired charging current and scales the desired charging current value to prevent excessive power dissipation to prevent overheating of the battery (abstract).

It would have been obvious to one having ordinary skill in the art at the time of this invention to further modify Faberman to provide an upper limit to a predetermined charging current to prevent the secondary battery from over heating due to excessive charging current.

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Regarding claim 5.

FABERMAN in view of LANDIS disclose a backup power supply according to claim 1.

FABERMAN in view of LANDIS do not disclose wherein said backup power has detection means for detecting said charging and discharging currents of said secondary battery, means for detecting a voltage of said secondary battery, and a circuit for calculating a residual capacity of said secondary battery and charges predetermined peak cut current according to said residual capacity of said secondary battery.

BARANOWSKI discloses a battery charger with power dissipation control wherein said battery charger has detection means for detecting said charging currents of a battery to control the power dissipation during the charging of the battery (column 1, lines 48-50), and a circuit for calculating a residual capacity of said secondary battery (abstract).

The examiner takes official notice that a means to detect the discharging current to limit discharge power dissipations in the battery are well known in the battery arts.

It would have been obvious to one having ordinary skill in the art at the time of this invention to have further modified Faberman to control the charging and discharging currents from the battery as taught by BARANOWSKI (COLUMN 1, LINES 48-50) to prevent the battery from overheating and to provide maximum power transfer to the load.

Regarding claim 6.

FABERMAN in view of LANDIS in further view of BARANOWSKI disclose a backup power supply according to claim 5.

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The above references do not disclose wherein when said residual capacity of said secondary battery is reduced lower than a predetermined capacity, said peak cut operation is stopped.

FABERMAN discloses when the battery is nearly depleted it is necessary to initiate final measures in preparation for shutoff (column 17, lines 5-45).

It would have been obvious to one having ordinary skill in the art at the time of this invention to provide the means wherein when said residual capacity of said secondary battery is reduced lower than a predetermined capacity, said peak cut operation is stopped to prevent the backup power supply from providing an unregulated supply voltage to the pulsed load.

Allowable Subject Matter

4. Claims 14, 15 allowed.
5. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not disclose or suggest to disclose means for averaging inductance current nor a drive signal change-over means.

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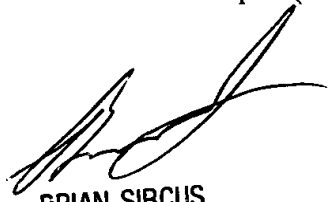
6. Claims 7-12, 12-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication should be directed to Robert L. DeBeradinis whose number is (703) 306-5857. The examiner can normally be reached on Monday-Friday from 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus, can be reached on (703) 308-3119. The fax phone number for this Group is (703) 308-7722.

RLD

JUNE 24, 2003



BRIAN SIRCUS
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